WHAT IS CLAIMED IS:

1. An adaptive routing for a hierarchical interconnection network using a mesh in a lower rank and a torus in a higher rank, wherein

an inter-basic-module link in the interconnection network is constituted by a ring-like link including 2^m nodes and a round-around channel, and a dynamic selection algorithm of a channel in the inter-basic-module link routes a packet such that,

when virtual channels L and H in the same link in the upper rank,

a packet uses channel L at the start of a routing, the packet moves to channel H immediately after the packet passes through an wrap-around channel, and,

when a packet at channel L satisfies two conditions: (1) the wrap-around channel is not expected to be used in the middle of the routing; (2) a routing is expected to be ended when the packet passes through the wrap-around channel, the packet can select channel H.

2. An adaptive routing for a hierarchical interconnection network using a mesh in a lower rank and a torus in a higher rank, wherein

an inter-basic-module link in the interconnection network is constituted by a ring-like link including 2^m nodes and a round-around channel, and an algorithm which selects a plurality of routes between the basic modules routes a packet such that,

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when two channels, i.e., channel 0 and channel 1 in rank-2,

a packet uses channel 0 at the start of a routing, the packet moves to channel 1 in a round-trip, and,

when a distance between a transmission source node and a destination node is $2^m/2$, the packet selects an idle one of both channels in + direction and - direction, and otherwise, the destination node selects a near channel.

3. An adaptive routing for a hierarchical interconnection network using a mesh in a lower rank and a torus in a higher rank, wherein

an inter-basic-module link in the interconnection network is constituted by a ring network, and a dynamic selection algorithm of the inter-basic-module link

defines a DR number which is the number of times of movement of a packet from a sub-phase 2.p to a sub-phase 2.q (q < p) the order of which is lower than that of sub-phase 2.p for each packet, records, when a packet acquires a channel, the DR number of the channel in the channel, and routes a packet such that,

in the routing,

an adaptive routing using a channel which is not used by a packet having a DR number which is not larger than the DR number of the self-packet is performed, and,

when all the routings are blocked by packets having DR numbers which are not larger than the DR number of the self-packet, the packet moves to a deterministic routing channel without returning to the adaptive routing.